GLOBAL CLIMATE HIGHLIGHTS

Major Climate Events and Anomalies as of March 21, 1992

1. Western North America:

WARM WEATHER PERSISTS.

Unseasonably high temperatures continued throughout the region as weekly departures reached as high as + 7°C in Montana and + 11°C in parts of Alberta, Saskatchewan, and Alaska [15 weeks].

2. Southern United States:

WETNESS EASES SLIGHTLY.

Most locations reported less than 40 mm of rain, although 50 to 90 mm dampened parts of central Arkansas and southern Louisiana. Six-week moisture surpluses exceeded 100 mm in many areas. With most sections experiencing saturated soils any additional rain will run off and keep the risk of renewed flooding very high [23 weeks].

3. East-Central South America:

STILL WET.

Parts of northern Argentina were inundated by as much as 190 mm of rain, with daily totals of up to 95 mm soaking northeastern parts of the country. Moisture surpluses of up to 400 mm have accumulated since mid-February [4 weeks].

4. South America:

LATE SUMMER HEAT WAVE.

Unusually high temperatures persisted across the continent from southern Bolivia and southern Brazil to central Argentina, where weekly departures reached + 5°C and daily highs soared to 41°C [3 weeks].

5. Southern Europe:

MORE DRY WEATHER.

Most locations received less than 15 mm of rain as precipitation deficits since mid-February reached 200 mm. Press reports indicate that lakes, rivers, and reservoirs in France and Spain have reached dangerously low levels [12 weeks].

6. Middle East and Northern Africa:

COLD CONDITIONS SPREAD.

After a week of near normal conditions, cold air again invaded much of northern Africa, where weekly departures dipped to -4°C. The prolonged cold spell continued in Greece, Turkey, and the Middle East as temperatures again averaged approximately 5°C below normal [17 weeks].

7. Southern Africa:

ABNORMALLY HIGH TEMPERATURES EXACERBATE DRYNESS.

Weekly temperature departures reached + 5°C in Zimbabwe and Botswana, and highs of up to 41°C baked parts of South Africa [8 weeks]. Most stations received less than 30 mm of rain, although western Zimbabwe measured as much as 50 mm. Moisture deficits since mid-February exceeded 200 mm at some locations [15 weeks].

8. Sri Lanka and Extreme Southern India:

VERY DRY CONDITIONS DEVELOP.

Little or no precipitation was reported last week as sizable rainfall shortages developed. Precipitation deficits since mid-February approached 140 mm in some areas, and much of Sri Lanka has received little rain since the beginning of the year [6 weeks].

9. Eastern China, Taiwan, Korea, and Western Japan:

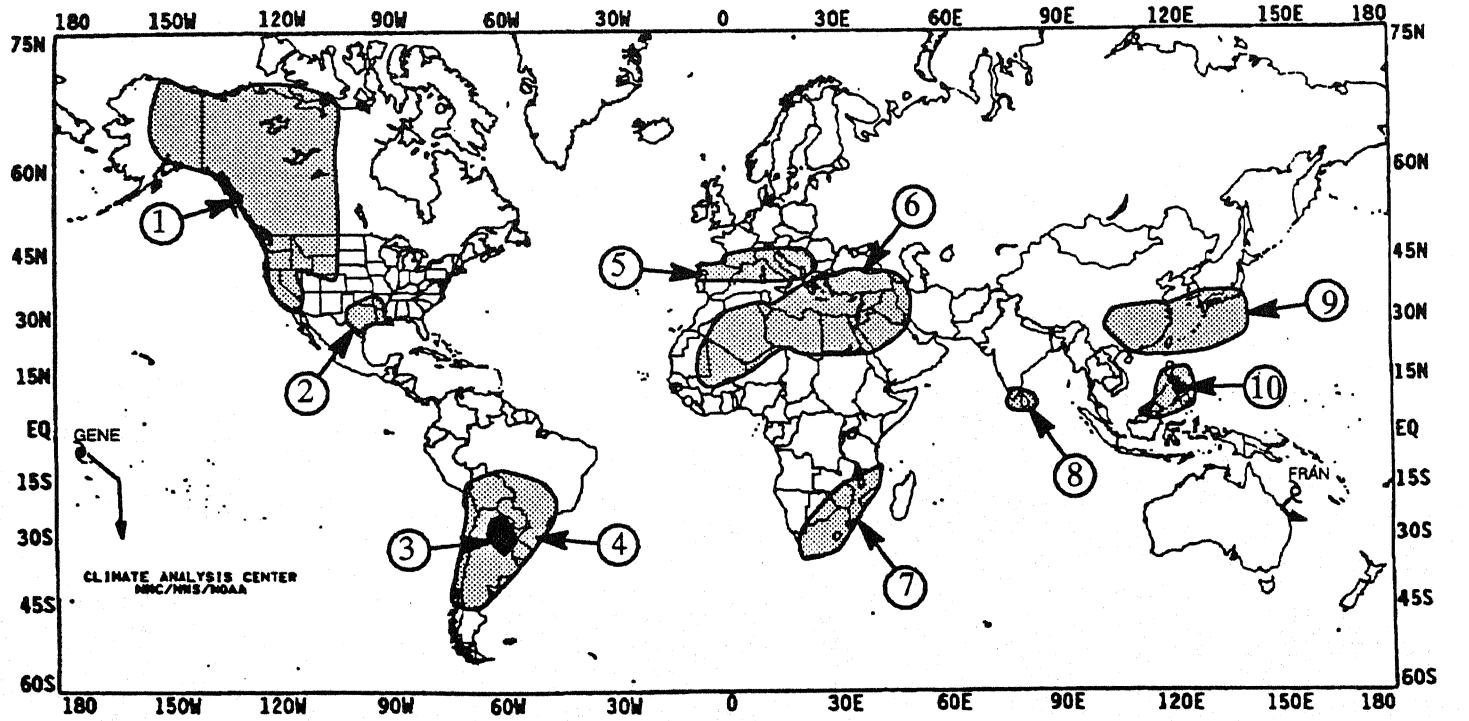
WETNESS EXPANDS.

Six-week moisture surpluses climbed to 300 mm in some locations as very wet weather persisted. A few stations in Korea received 120 mm while parts of China were inundated by up to 170 mm of rain. The wet conditions also spread into western Japan, where weekly totals approached 225 mm [7 weeks].

10. Philippines and Northern Borneo:

WEATHER REMAINS VERY DRY.

Light to moderate precipitation (up to 35 mm) moistened a few stations, but little or no rain fell in most areas. Moisture deficits since mid-February exceeded 400 mm at a few isolated locations [12 weeks].



EXPLANATION

TEXT: Approximate duration of anomalies is in brackets. Precipitation amounts and temperature departures are this week's values.
MAP: Approximate locations of major anomalies and episodic events are shown. See other maps in this Bulletin for current two week temperature anomalies, four week precipitation anomalies, long-term anomalies, and other details.

UNITED STATES WEEKLY CLIMATE HIGHLIGHTS
FOR THE WEEK OF MARCH 15–21, 1992

The transition from winter to spring has been a slow process for much of the eastern U.S. Wintry conditions persisted across the Northeast, Great Lakes, and mid–Atlantic, and pushed into the Southeast as a blast of frigid Arctic air plunged southward out of Canada. Heavy snow fell from the Great Plains to New England with more than a foot measured in parts of Minnesota and Maine. Unseasonably cold weather reached as far south as northern Florida where readings dipped to freezing. Nearly two dozen daily record lows were established from Maine to Florida as sub–zero temperatures gripped the northern tier of states east of North Dakota. Strong winds accompanied the Arctic chill, generating lake–effect snow and bitterly cold wind chills across the northeastern quarter of the nation. Wind chills reached –25°F at Montpelier, VT on Sunday (Figure 1) while snow squalls dumped up to half a foot of snow on western Maryland. In sharp contrast, unseasonable warmth enveloped the southern sections of Florida and Texas, the northern High Plains, and portions of the West. More than a dozen record daily highs were observed from Texas to Washington, with readings soaring into the sixties and seventies as far north as Montana. Parts of southern Texas topped 90°F. Elsewhere, strong thunderstorms broke out from the southern Plains and Mississippi Valley eastward to the mid–Atlantic as warm, moist Gulf air collided with the frigid Arctic air. Thunderstorms dumped more than 2 inches of rain on parts of the Deep South and the Tennessee and Mississippi Valleys. Hail, damaging winds, and tornadoes battered many areas from Texas eastward to North Carolina as more than six dozen reports of severe weather occurred on Thursday. Farther west, a couple of storm systems produced more than an inch of rain and beneficial mountain snows in California. Up to 3 inches soaked the Central Valley while nearly a foot of snow blanketed the northern Sierra Nevadas on Sunday. In Alaska, heavy rain inundated some southeastern locations while unusually mild conditions dominated the state. More than 10 inches of rain drenched Yakutat, AK, pushing the March total to nearly 31 inches, a new record.

The week began with unseasonably cold conditions entrenched across most of the eastern half of the nation as Arctic air spilled southward out of Canada. Sub–zero lows were observed from northern Maine to northern Minnesota on Sunday while freezing temperatures occurred in the Carolinas. By Monday, sub–freezing readings reached the Deep South, and nearly a dozen more record daily lows were established in the East. Meanwhile, abnormally warm weather prevailed across portions of the Great Plains and Rockies as readings soared above 70°F in Montana. The unusual warmth was short–lived, however, as a reinforcing shot of cold, Canadian air pushed into the north–central U.S. on Monday. The cold front moved rapidly southward into the central and southern Plains by Tuesday where it induced severe weather in Kansas and Oklahoma. To the west, a low tracked through the Pacific Northwest, while the trailing cold front pushed into California, producing heavy rain and mountain snows. Up to an inch of rain soaked Sacramento, CA in a 30–minute period on Sunday, causing urban flooding. The frontal system eventually pushed into the Rockies, spreading snow across parts of Nevada and Utah.

During the last half of the week, more than half a foot of snow fell on portions of the northern and central Rockies and northern High Plains. To the south, a low developed over the Texas Panhandle along the trailing edge of the frontal system lying across the nation's midsection. Severe weather erupted ahead of the storm system as it tracked northeastward along the front. Strong thunderstorms generated heavy rain, hail, damaging winds, and tornadoes from the southern Plains to the mid–Atlantic. Nearly three inches of rain soaked Memphis, TN on Wednesday. To the north of the front, a wintry mixture of precipitation prevailed from Kansas to New Jersey. Up to a foot of snow buried Phillipsburg, KS while freezing rain coated parts of the Midwest. Meanwhile, heavy snow was reported in northern New England, with more than half a foot blanketing parts of Massachusetts, New York, and New Jersey. Toward the weekend, a fast–moving storm system slid across the upper Midwest, dumping more than a foot of snow on Stillwater, MN and up to half a foot on parts of Wisconsin and Illinois. Heavy rain again soaked parts of California while heavy snow fell in the mountains. Up to an inch of rain drenched some locations in southern California. To the north, mild and relatively tranquil conditions prevailed in the Northwest as readings shot into the sixties.

According to the River Forecast Centers, the greatest weekly precipitation totals (more than 2 inches) fell on the eastern third of Kansas, the lower Mississippi Valley, the Deep South, parts of the Tennessee and lower Ohio Valleys, the central Appalachians, the northern third of California, and southeastern Alaska (Table 1). Light to moderate amounts were measured in southern Alaska, eastern Hawaii, along the West Coast, in the southern Intermountain West, across most of the northern two thirds of the Rockies, through the southern two thirds of the Great Plains, and in much of the country east of the Mississippi River. Little or no precipitation was reported in northern New England, the southern half of Florida, the upper Midwest and northern Plains, the central and the southern High Plains, southern Rockies and the northern Intermountain West.

Abnormally warm weather dominated the nation west of the Mississippi River Valley (Table 2). Weekly departures between +8°F and +12°F were common across the northern Rockies and High Plains while departures of +3°F to +7°F were observed from the Great Plains westward across the rest of the western U.S. Near to slightly above normal temperatures were recorded in the Mississippi Valley. In Alaska, unusually mild conditions dominated, with weekly departures between +15°F and +20°F observed across central sections as readings approached 40°F.

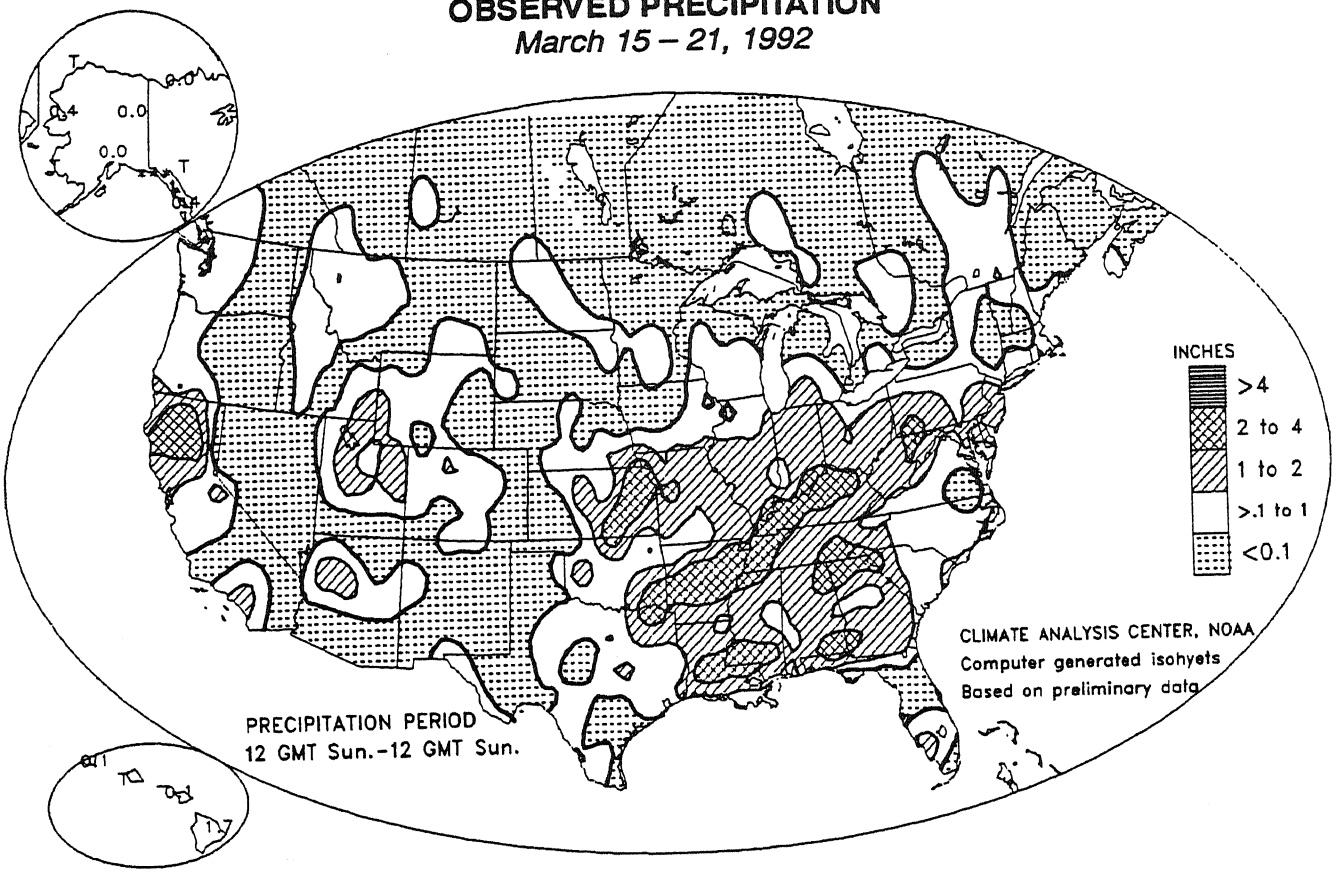
Unusually cold early–spring weather dominated the eastern third of the nation as repeated invasions of Arctic air plummeted southeastward out of Canada (Table 3). Weekly departures between –9°F and –13°F were observed from Maine to Maryland and temperatures averaged 3°F to 8°F below normal across the remainder of the East, the Great Lakes, and the eastern half of the Ohio Valley.

TABLE 1. *SELECTED STATIONS WITH 2.00 OR MORE INCHES OF PRECIPITATION DURING THE WEEK OF MARCH 15 – 21, 1992*

STATION	TOTAL (INCHES)	STATION	TOTAL (INCHES)
YAKUTAT, AK	10.96	LITTLE ROCK, AR	2.36
MCCOMB, MS	3.88	PINE BLUFF, AR	2.34
MEMPHIS NAS, TN	3.63	CORDOVA/MILE 13, AK	2.30
DOTHAN, AL	2.97	VALDOSTA/MOODY AFB, GA	2.27
RUSSELL, KS	2.94	HOPKINSVILLE/CAMPBELL, KY	2.16
TOPEKA, KS	2.92	WICHITA/MCCONNELL AFB, KS	2.14
LITTLE ROCK AFB, AR	2.87	KANSAS CITY/INTL, MO	2.10
CENTERVILLE, AL	2.69	ADAK, AK	2.07
JACKSON, TN	2.55	CHATTANOOGA, TN	2.04
OZARK/CAIRNS AFB, AL	2.53	MILTON/WHITING NAS, FL	2.03
LOUISVILLE/STANDIFORD, KY	2.40	MINOT AFB, ND	2.02

OBSERVED PRECIPITATION

March 15 – 21, 1992



DEPARTURE OF AVERAGE TEMPERATURE FROM NORMAL (°F)

March 15 – 21, 1992

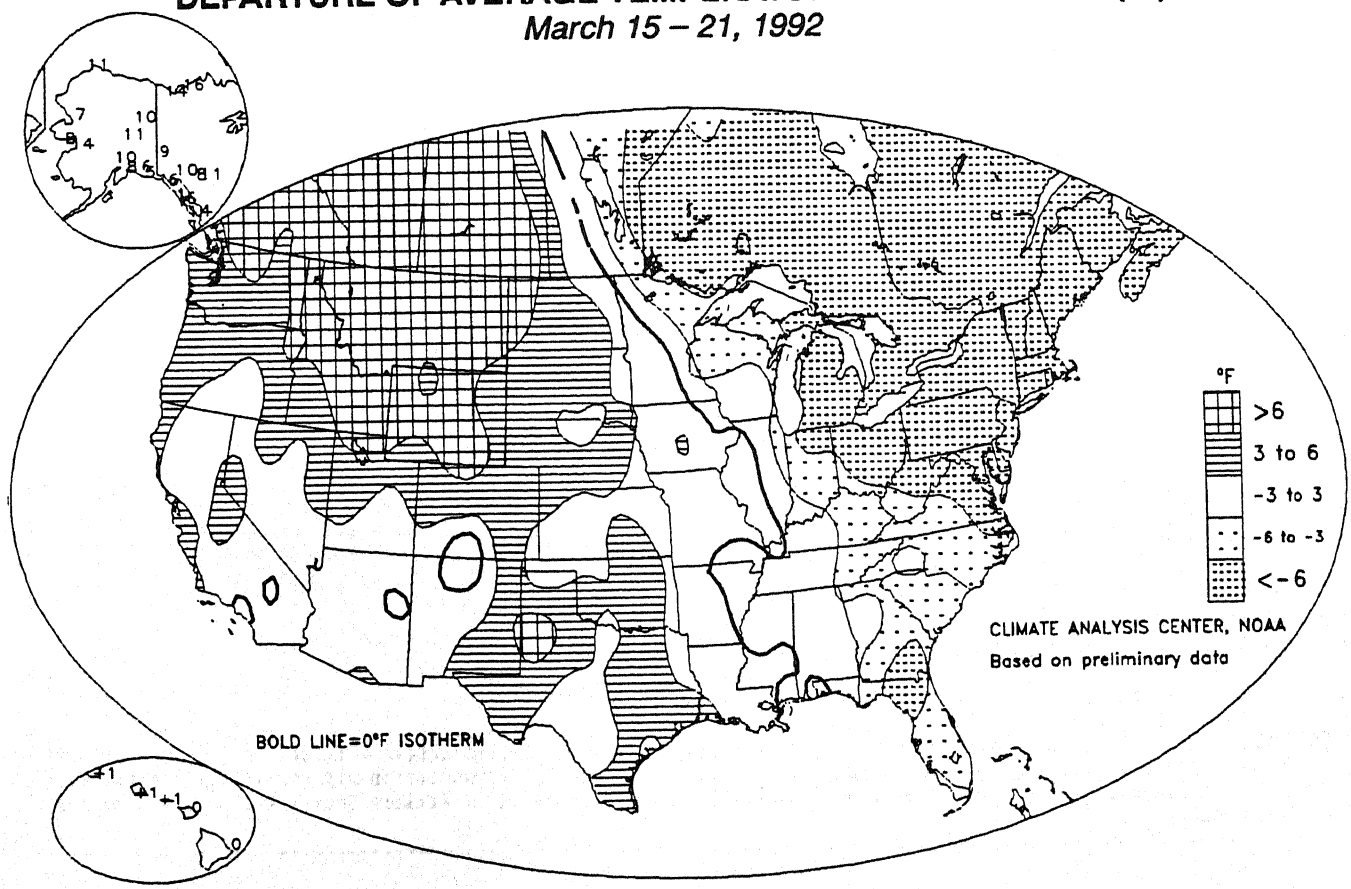


TABLE 2. *SELECTED STATIONS WITH TEMPERATURES AVERAGING 9.0°F OR MORE ABOVE NORMAL FOR THE WEEK OF MARCH 15 – 21, 1992*

STATION	DEPARTURE (°F)	AVERAGE (°F)	STATION	DEPARTURE (°F)	AVERAGE (°F)
BETTLES, AK	+19.5	23.4	BARROW, AK	+11.4	-3.8
MCGRATH, AK	+17.2	26.9	BUTTE, MT	+11.3	38.1
ANIAK, AK	+16.9	28.6	FT YUKON, AK	+10.9	14.4
UNALAKLEET, AK	+14.2	23.0	TALKEETNA, AK	+10.7	30.9
BIG DELTA, AK	+13.9	26.7	KENAI, AK	+9.8	30.9
KING SALMON, AK	+12.9	32.9	GLASGOW, MT	+9.7	38.7
BETHEL, AK	+12.8	24.5	HELENA, MT	+9.6	42.0
ILIAMNA, AK	+12.7	32.2	STAMPEDE PASS, WA	+9.1	39.3
BOZEMAN, MT	+12.4	40.7	LEWISTOWN, MT	+9.0	37.6
FAIRBANKS, AK	+11.6	21.5			

TABLE 3. *SELECTED STATIONS WITH TEMPERATURES AVERAGING 10.0°F OR MORE BELOW NORMAL FOR THE WEEK OF MARCH 15 – 21, 1992*

STATION	DEPARTURE (°F)	AVERAGE (°F)	STATION	DEPARTURE (°F)	AVERAGE (°F)
MASSENA, NY	-13.2	16.2	BURLINGTON, VT	-10.7	20.0
MT WASHINGTON, NH	-12.9	0.1	EASTPORT, ME	-10.7	21.8
SYRACUSE, NY	-12.7	21.6	ROCHESTER, NY	-10.7	23.5
ROME/GRIFFISS AFB, NY	-12.5	18.6	MANSFIELD, OH	-10.7	27.1
UTICA, NY	-12.4	19.9	MONTPELIER, VT	-10.6	18.4
ELMIRA/CHEMUNG CO, NY	-11.9	22.8	HARTFORD, CT	-10.6	27.2
CARIBOU, ME	-11.7	14.0	BINGHAMTON, NY	-10.5	22.1
HOULTON, ME	-11.6	14.9	TRENTON, NJ	-10.4	31.9
BRADFORD, PA	-11.6	20.0	YOUNGSTOWN, OH	-10.3	26.0
POUGHKEEPSIE, NY	-11.5	25.7	AKRON, OH	-10.2	27.6
WILKES-BARRE, PA	-10.9	26.1			

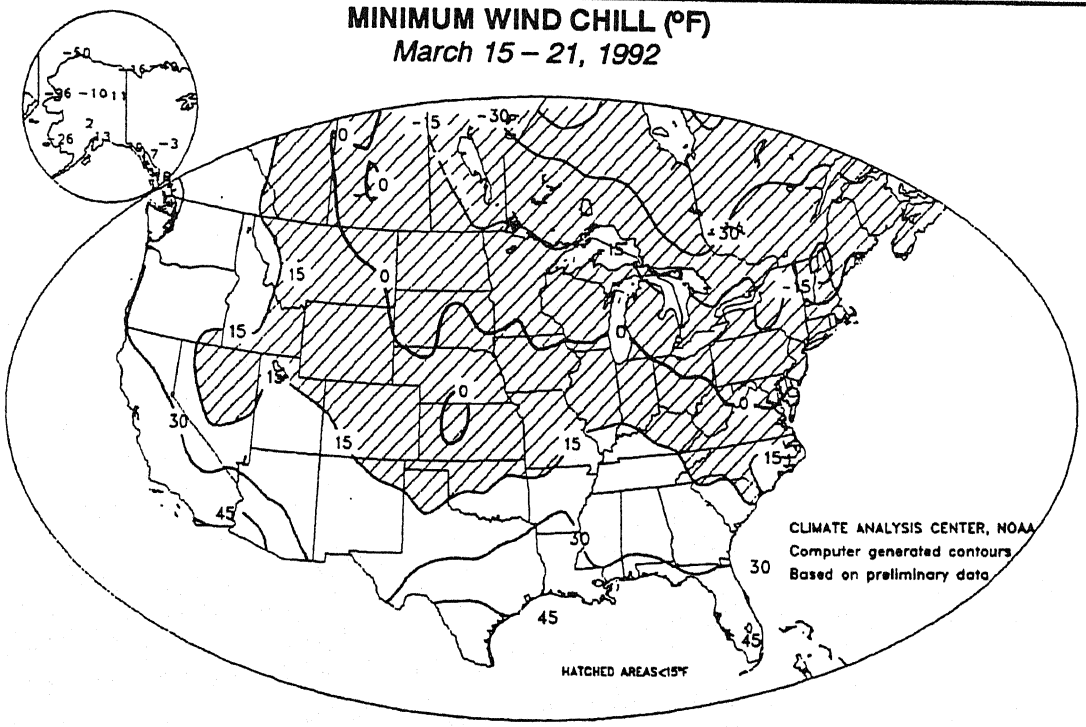
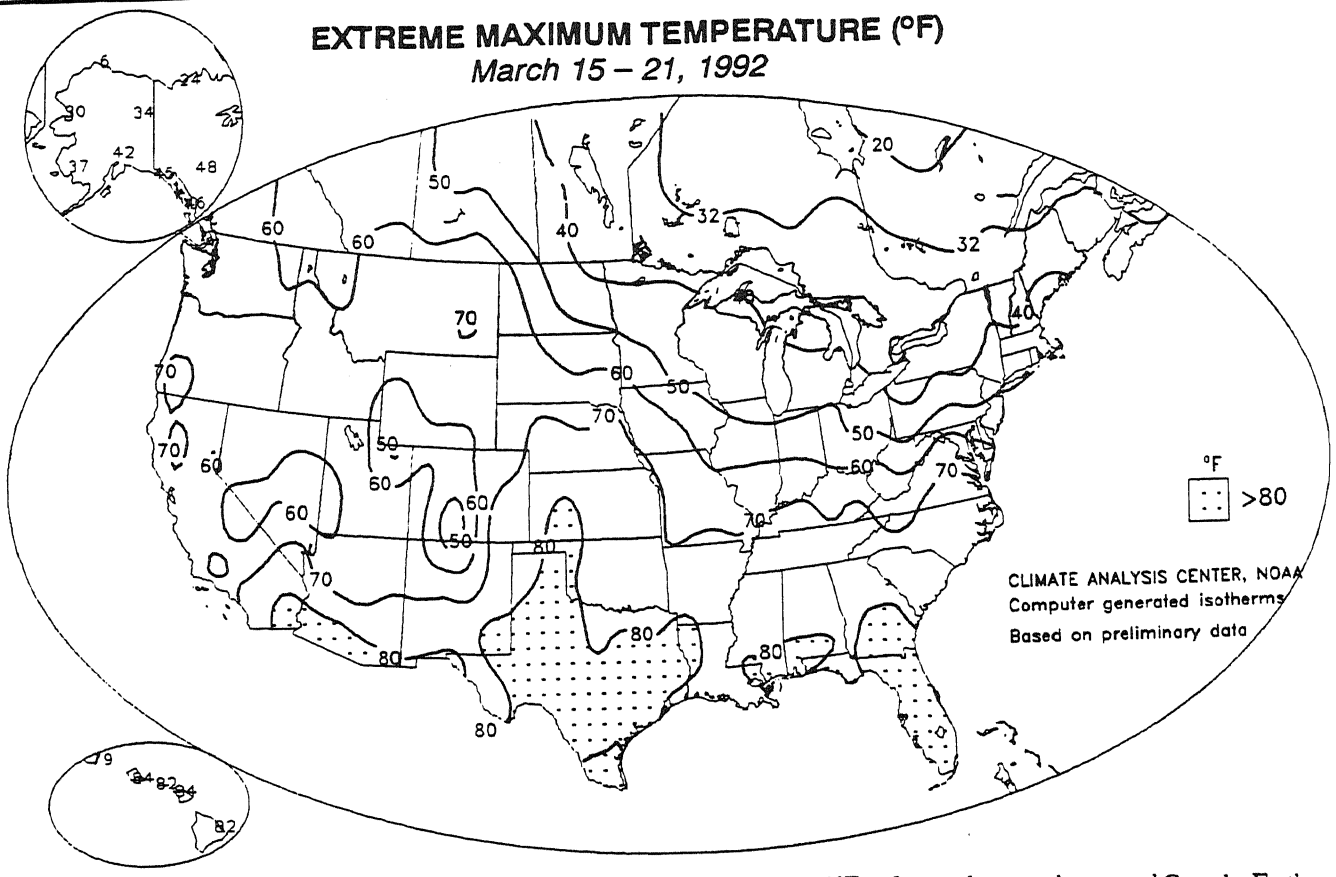


FIGURE 1. Strong winds accompanied a blast of Arctic air across the central and eastern sections of the country, bringing sub-zero wind chills southward to the central Plains, the Great Lakes, and the mid - Atlantic. The late season cold snap brought wind chills in the teens as far south as the Texas panhandle, northern South Carolina, and portions of the Rockies. Snow was observed as far south as Myrtle Beach, S.C.

EXTREME MAXIMUM TEMPERATURE (°F)

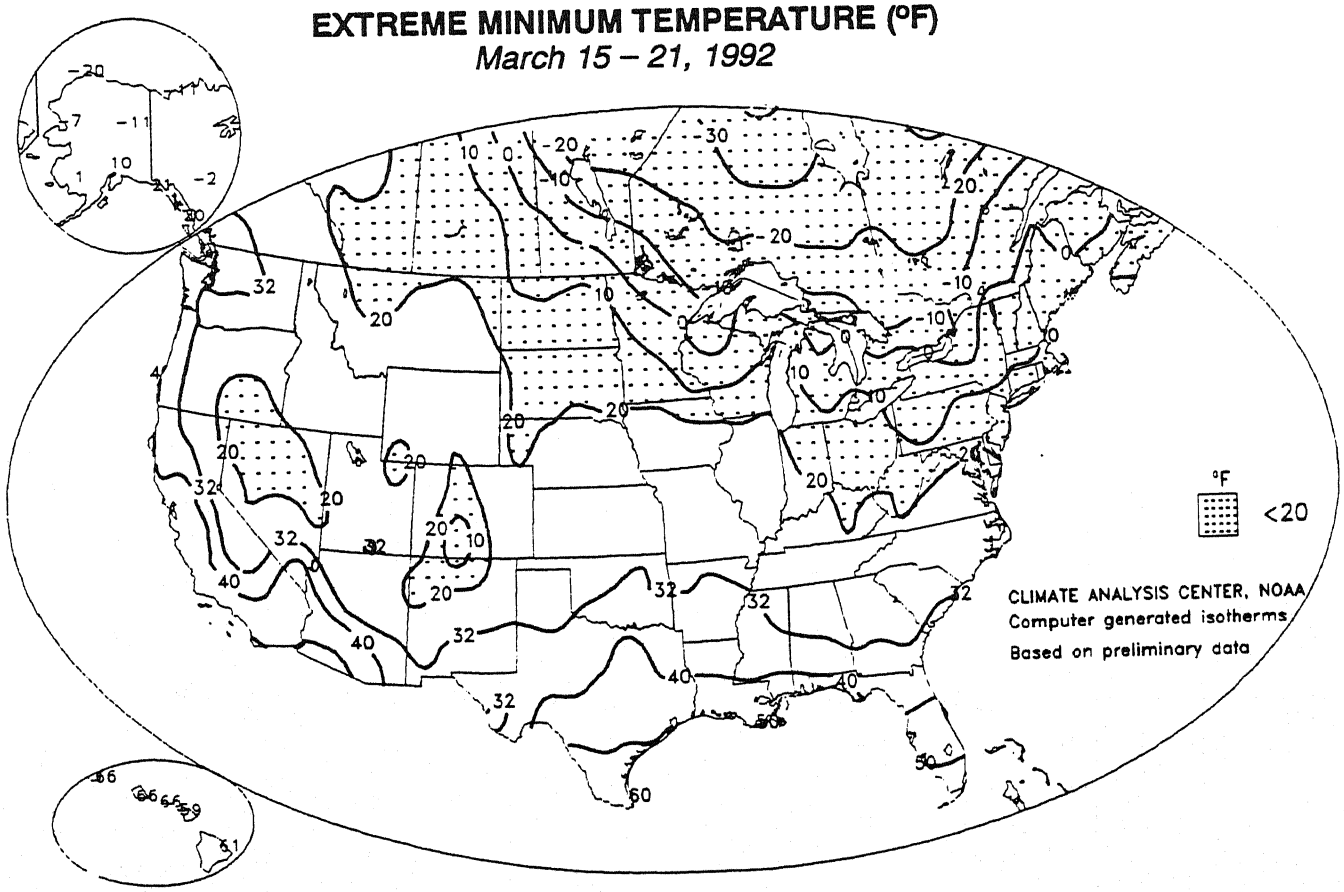
March 15 – 21, 1992



Relatively mild conditions prevailed across much of the West with readings topping 60°F as far north as south - central Canada. Farther east, a brief mid-week warm-up pushed temperatures into the seventies in Virginia (top). Arctic air was prevalent the rest of the week, generating sub-freezing temperatures in the Deep South and single digit readings along the northernmost fringes of the upper Midwest, Great Lakes, and Northeast (bottom).

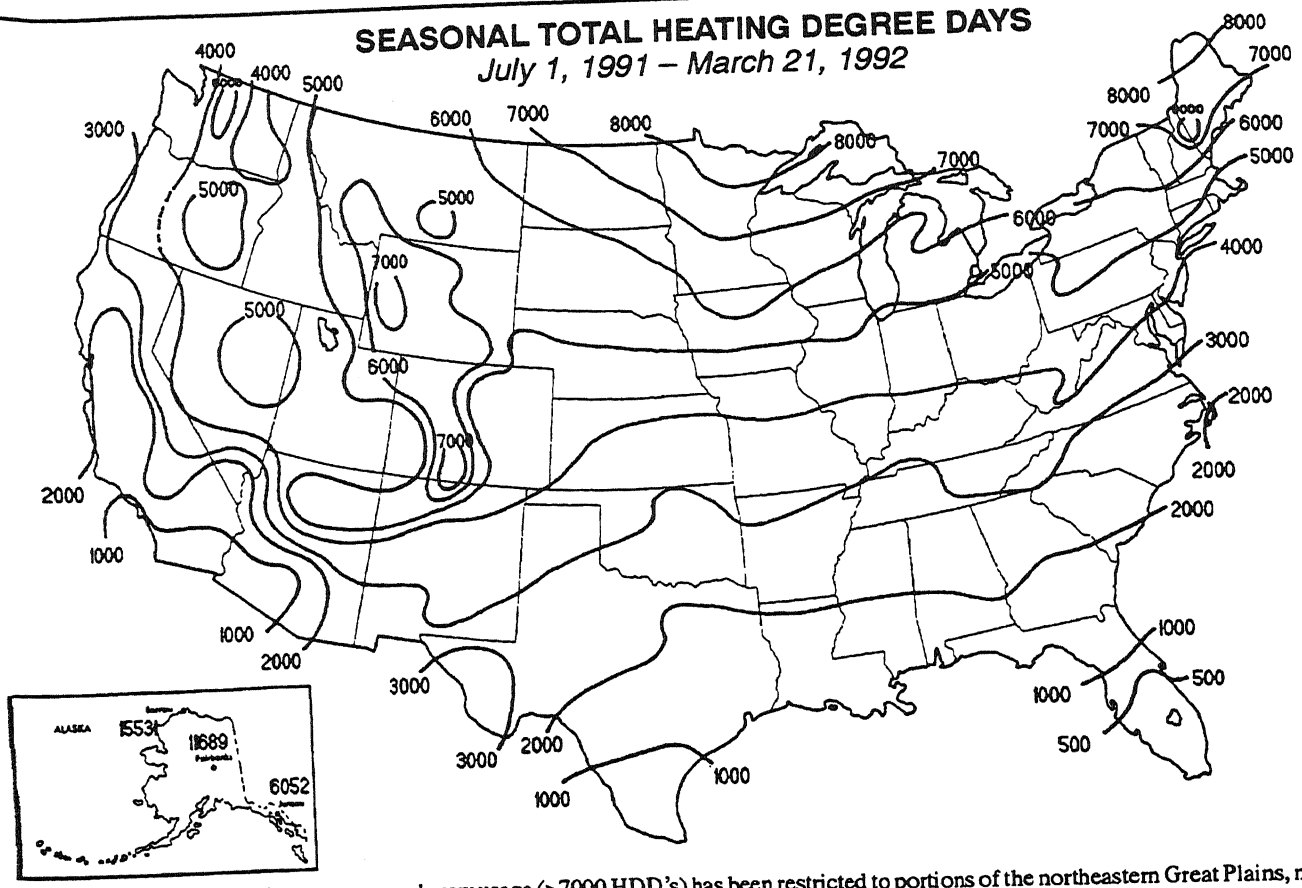
EXTREME MINIMUM TEMPERATURE (°F)

March 15 – 21, 1992



SEASONAL TOTAL HEATING DEGREE DAYS

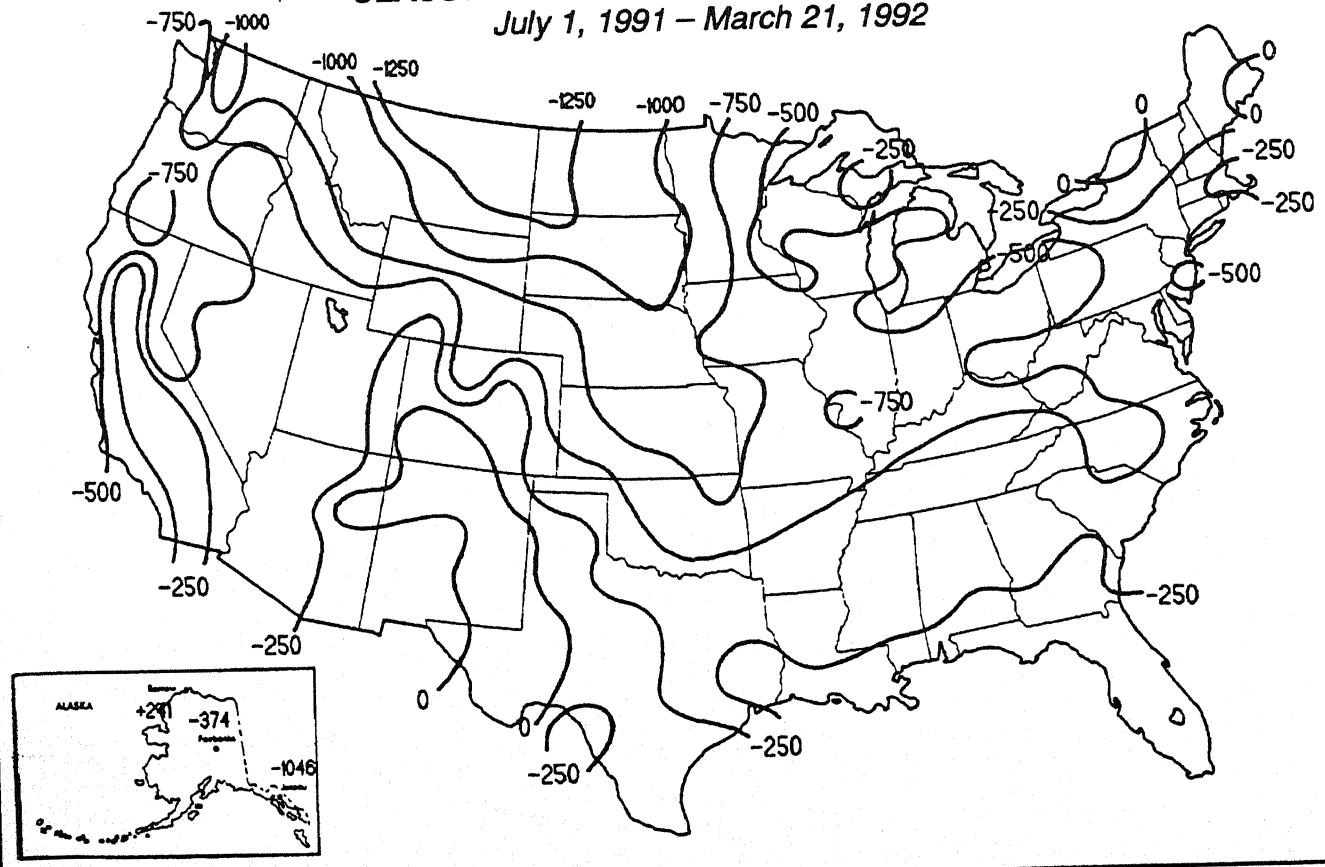
July 1, 1991 – March 21, 1992



During the 1991–1992 heating season, very heavy usage (>7000 HDD's) has been restricted to portions of the northeastern Great Plains, northwestern Great Lakes, and northern New England, primarily due to an exceptionally mild Winter (top). Heating demand has been well below normal across most of the nation, particularly through the central and northern Great Plains, northern High Plains, and much of Washington, where seasonal HDD totals were 750 to 1550 below normal (bottom).

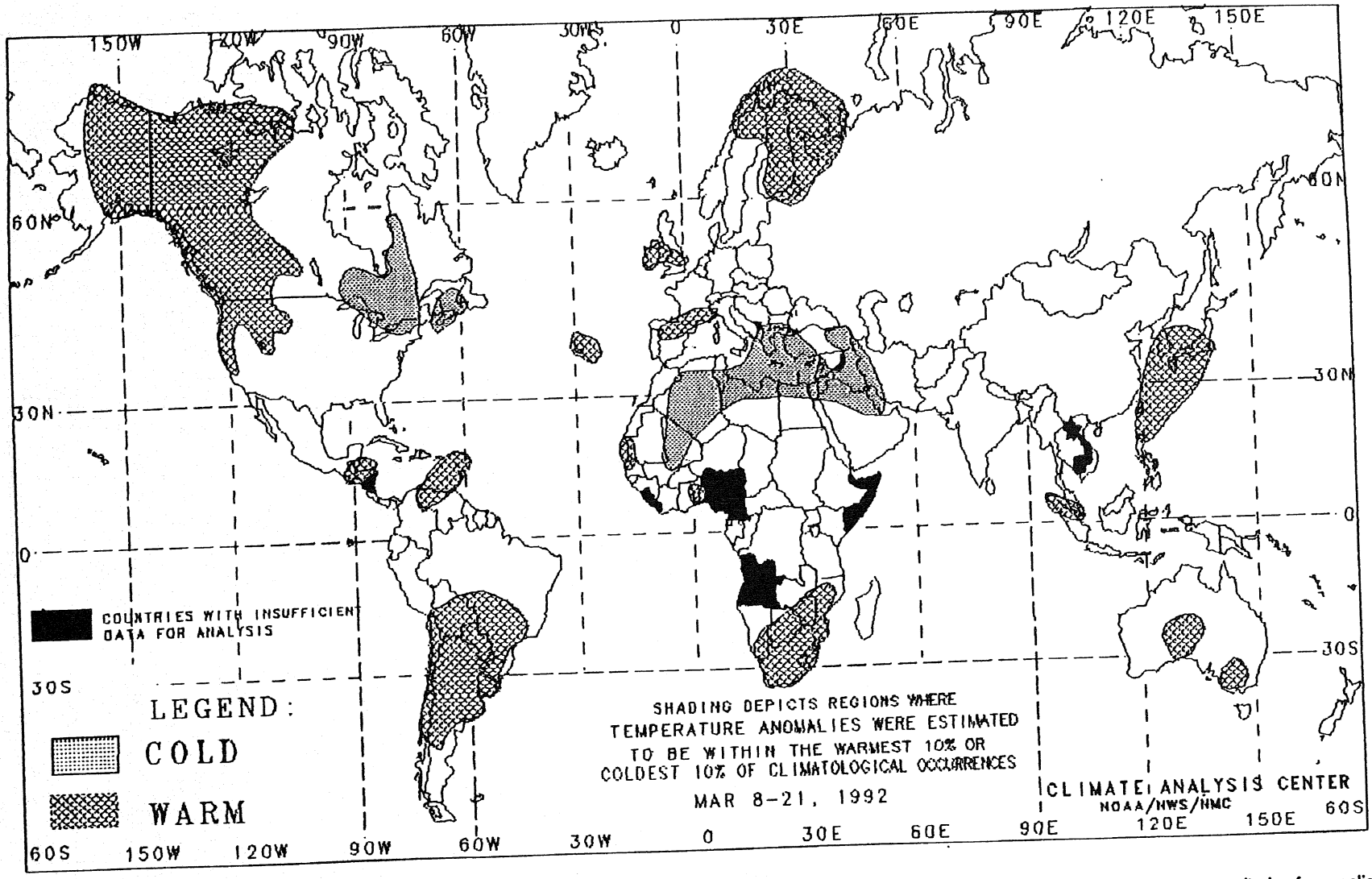
SEASONAL DEPARTURE FROM NORMAL HDD

July 1, 1991 – March 21, 1992



2–WEEK GLOBAL TEMPERATURE ANOMALIES

MARCH 8 – 21, 1992



The anomalies on this chart are based on approximately 2500 observing stations for which at least 13 days of temperature observations were received from synoptic reports. Many stations do not operate on a twenty–four hour basis so many night time observations are not taken. As a result of these missing observations the estimated minimum temperature may have a warm bias. This in turn may have resulted in an overestimation of the extent of some warm anomalies.

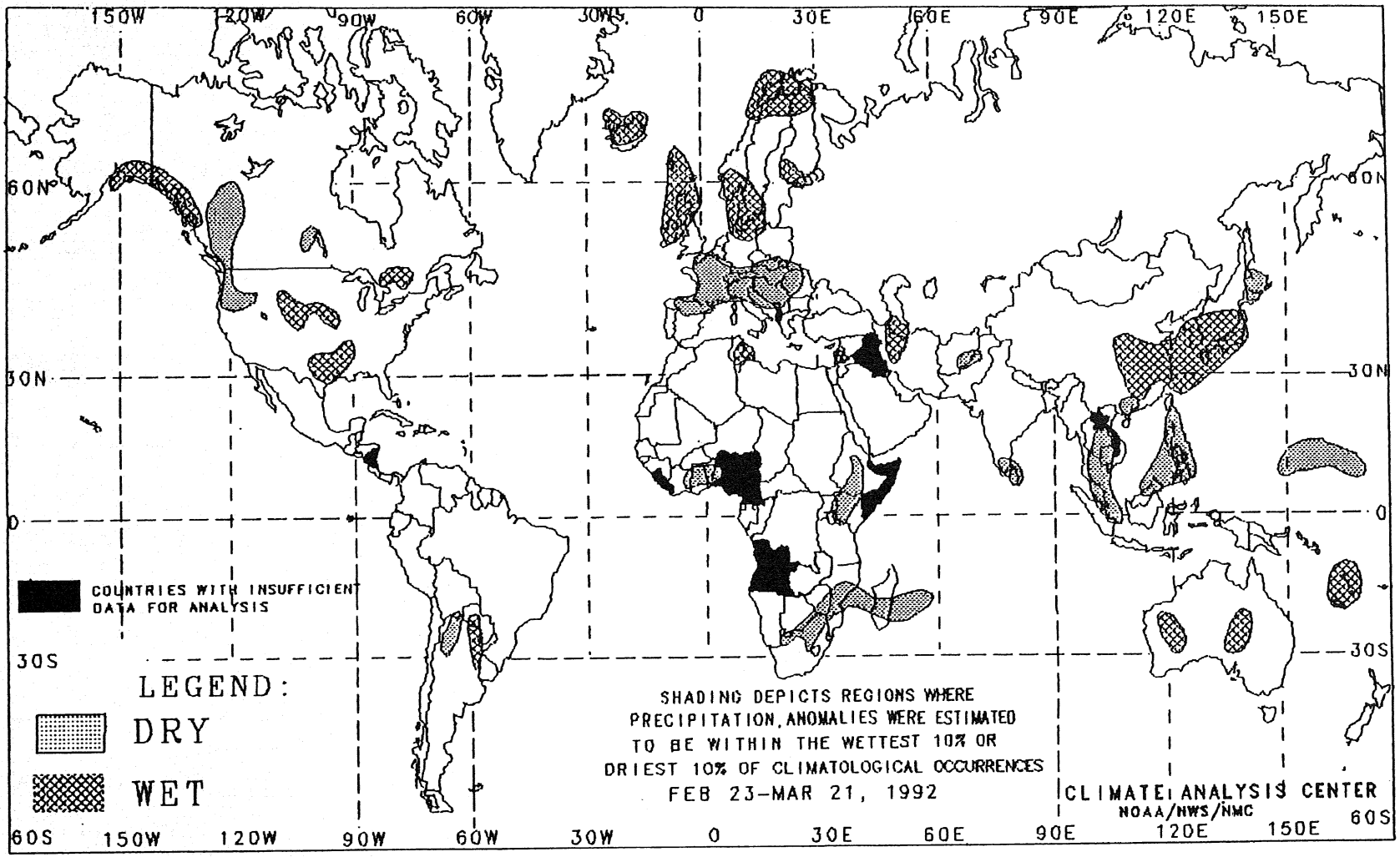
Temperature anomalies are not depicted unless the magnitude of temperature departures from normal exceeds 1.5°C.

In some regions, insufficient data exist to determine the magnitude of anomalies. These regions are located in parts of tropical Africa, southwestern Asia, interior equatorial South America, and along the Arctic Coast. Either current data are too sparse or incomplete for analysis, or historical data are insufficient for determining percentiles, or both. No attempt has been made to estimate the magnitude of anomalies in such regions.

This chart shows general areas of two week temperature anomalies. Caution must be used in relating it to local conditions, especially in mountainous regions.

4–WEEK GLOBAL PRECIPITATION ANOMALIES

FEBRUARY 23 – MARCH 21, 1992



The anomalies on this chart are based on approximately 2500 observing stations for which at least 27 days of precipitation observations (including zero amounts) were received or estimated from synoptic reports. As a result of both missing observations and the use of estimates from synoptic reports (which are conservative), a dry bias in the total precipitation amount may exist for some stations used in this analysis. This in turn may have resulted in an overestimation of the extent of some dry anomalies.

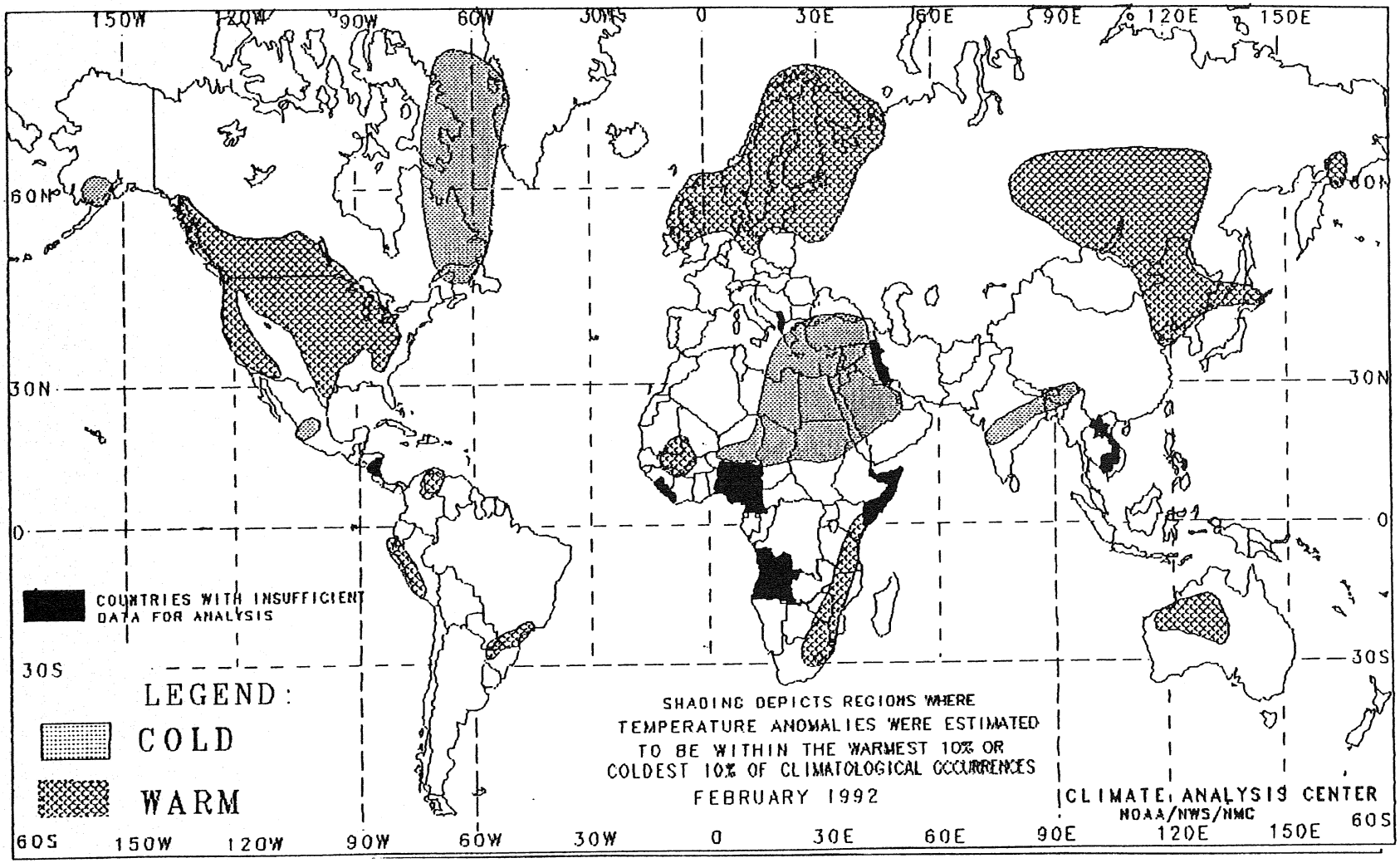
In climatologically arid regions where normal precipitation for the four week period is less than 20 mm, dry anomalies are not depicted. Additionally, wet anomalies for such arid regions are not depicted unless the total four week precipitation exceeds 50 mm.

In some regions, insufficient data exist to determine the magnitude of anomalies. These regions are located in parts of tropical Africa, southwestern Asia, interior equatorial South America, and along the Arctic Coast. Either current data are too sparse or incomplete for analysis, or historical data are insufficient for determining percentiles, or both. No attempt has been made to estimate the magnitude of anomalies in such regions.

The chart shows general areas of four week precipitation anomalies. Caution must be used in relating it to local conditions, especially in mountainous regions.

MONTHLY GLOBAL TEMPERATURE ANOMALIES

FEBRUARY 1992



The anomalies on this chart are based on approximately 2500 observing stations for which at least 26 days of temperature observations were received from synoptic reports. Many stations do not operate on a twenty-four hour basis so many night time observations are not taken. As a result of these missing observations the estimated minimum temperature may have a warm bias. This in turn may have resulted in an overestimation of the extent of some warM anomalies.

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This chart shows general areas of one month temperature anomalies. Caution must be used in relating it to local conditions, especially in mountainous regions.

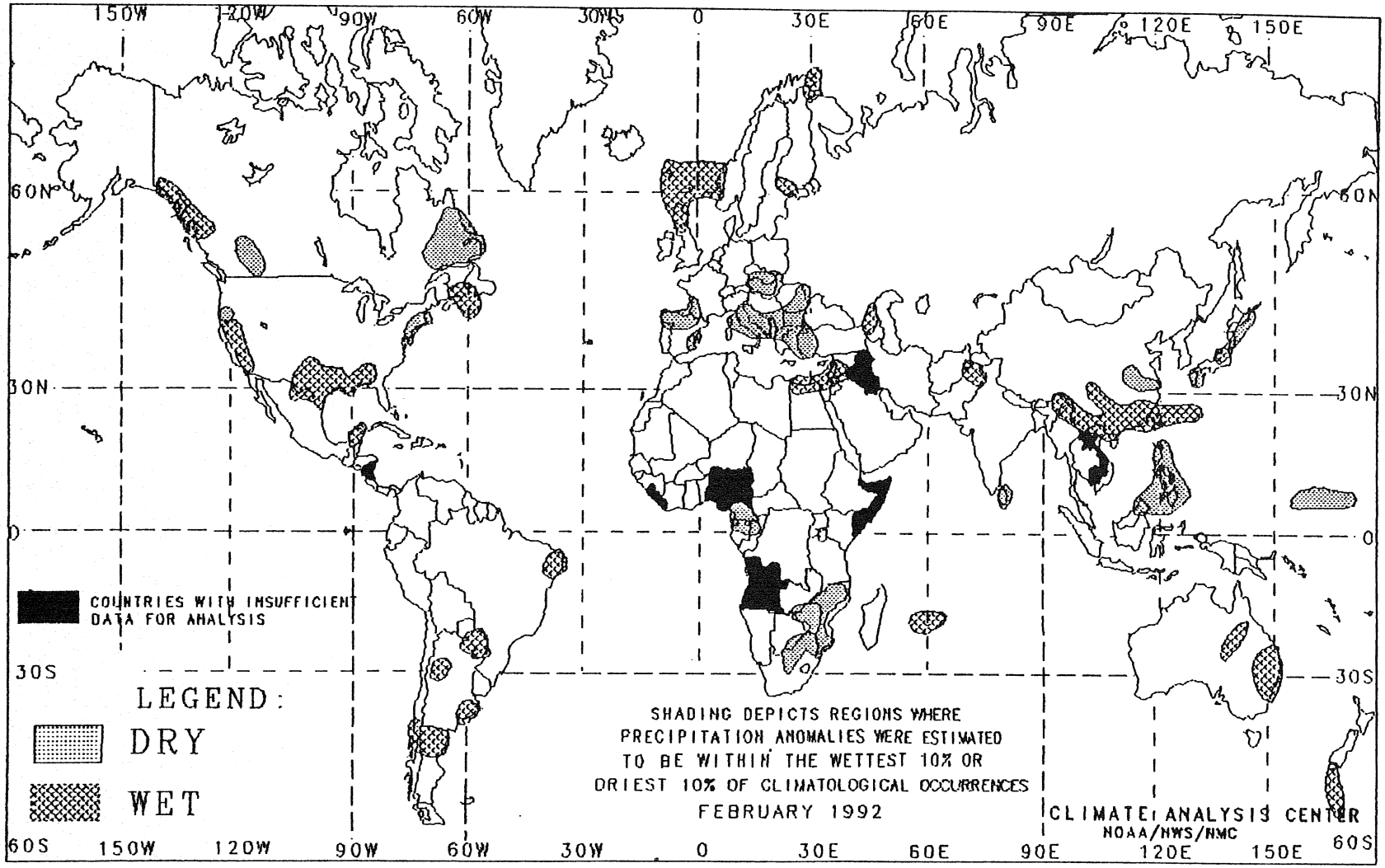
PRINCIPAL TEMPERATURE ANOMALIES

FEBRUARY 1992

REGIONS AFFECTED	TEMPERATURE AVERAGE (°C)	DEPARTURE FROM NORMAL (°C)	COMMENTS
NORTH AMERICA			
South-Central Alaska	-16 to -14	-5 to -6	COLD - 8 weeks
United States and Southwestern Canada	-11 to +18	+2 to +7	MILD - 2 to 18 weeks
Eastern Canada and West-Central Greenland	-35 to -14	-3 to -11	COLD - 8 to 10 weeks
Central Mexico	+13 to +15	Around -2	Very cold early and late in I
SOUTH AMERICA AND EASTERN PACIFIC			
Western Venezuela	+21 to +28	Around +2	WARM - 2 to 7 weeks
Coast of Peru	+25 to +28	Around +3	WARM - 4 to 10 weeks
Southern Brazil and Extreme Northeastern Argentina	+24 to +27	Around +2	WARM - 4 weeks
EUROPE AND THE MIDDLE EAST			
Northern Europe	-7 to +6	+2 to +7	MILD - 4 to 12 weeks
Southern Europe and the Middle East	-15 to +16	-3 to -9	COLD - 4 to 22 weeks
AFRICA			
Mali and Mauritania	+29 to +30	+2 to +4	WARM - 4 to 5 weeks
Northeastern Africa	+11 to +25	-2 to -5	COOL - 2 to 10 weeks
Southern Africa	+9 to +31	+2 to +4	WARM - 4 to 10 weeks
ASIA			
Southeastern Siberia and Northern China	-22 to +2	+3 to +10	MILD - 4 to 26 weeks
Extreme Eastern Siberia	-18 to -9	+4 to +5	WARM - 8 weeks
India	+16 to +21	Around -2	Very cold second half of Fel
AUSTRALIA AND WESTERN PACIFIC			
Northwestern Australia	+30 to +34	+2 to +3	WARM - 2 to 4 weeks

MONTHLY GLOBAL PRECIPITATION ANOMALIES

FEBRUARY1992



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In climatologically arid regions where normal precipitation for the one month period is less than 20 mm, dry anomalies are not depicted. Additionally, wet anomalies for such arid regions are not depicted unless the total one month precipitation exceeds 50 mm.

In some regions, insufficient data exist to determine the magnitude of anomalies. These regions are located in parts of tropical Africa, southwestern Asia, interior equatorial South America, and along the Arctic Coast. Either current data are too sparse or incomplete for analysis, or historical data are insufficient for determining percentiles, or both. No attempt has been made to estimate the magnitude of anomalies in such regions.

The chart shows general areas of one month precipitation anomalies. Caution must be used in relating it to local conditions, especially in mountainous regions.

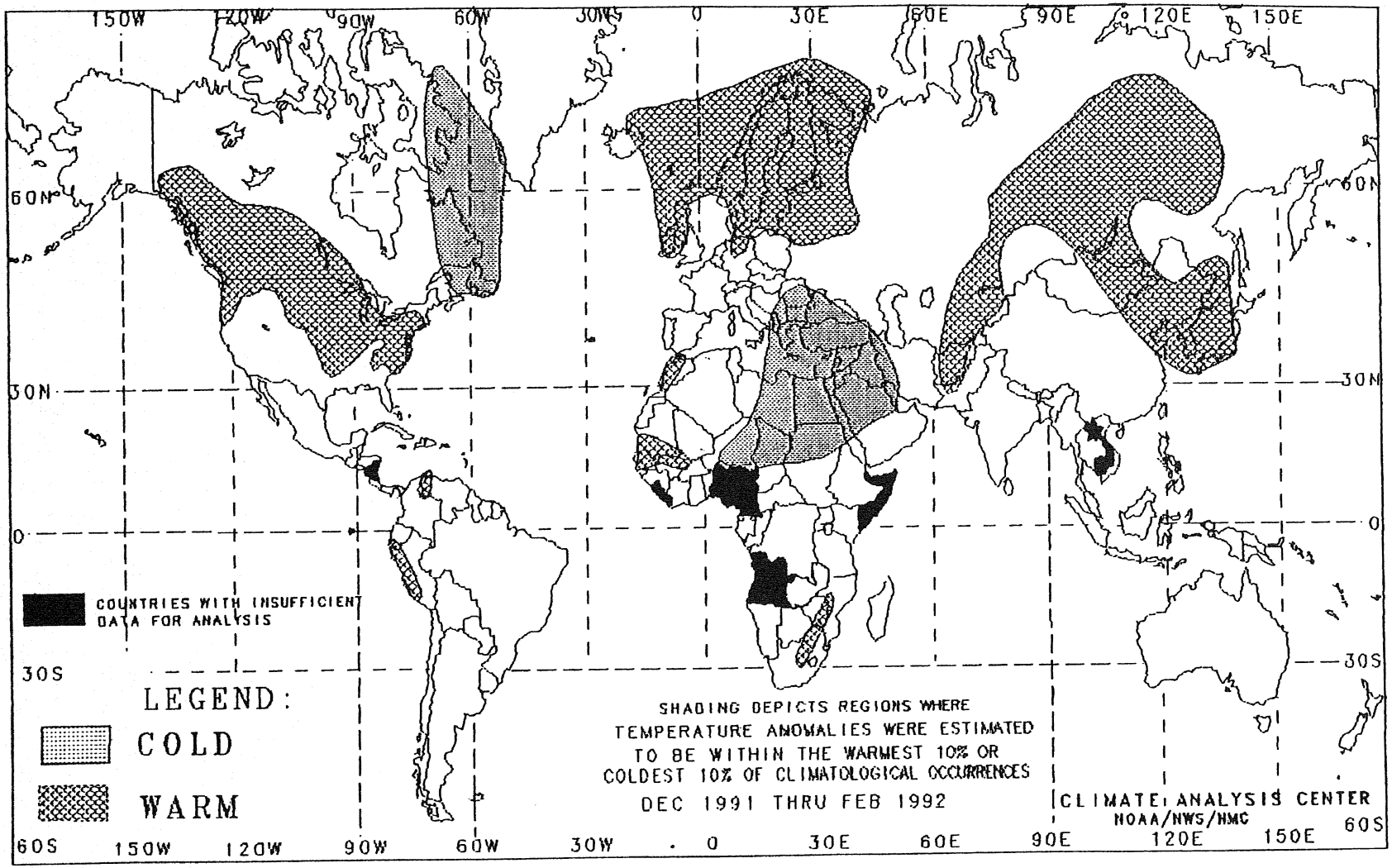
PRINCIPAL PRECIPITATION ANOMALIES

FEBRUARY 1992

REGIONS AFFECTED	PRECIPITATION TOTAL (MM)	PERCENT OF NORMAL	COMMENTS
NORTH AMERICA			
Southeastern Alaska and Adjacent Canada	52 to 495	167 to 195	WET – 4 weeks
Southern Alberta	Around 1	1 to 5	DRY – 4 to 10 weeks
Southwestern Oregon	16 to 102	29 to 40	DRY – 10 to 17 weeks
California	85 to 196	234 to 258	WET – 5 weeks
Southern United States and Northeastern Mexico	51 to 253	183 to 1974	WET – 2 to 18 weeks
New York and Southern New England	34 to 53	45 to 56	DRY – 4 weeks
Eastern Nova Scotia	176 to 221	157 to 217	Heavy precipitation first half of February
Quebec and Labrador	5 to 17	11 to 29	DRY – 6 to 10 weeks
Yucatan, Mexico	65 to 77	289 to 472	WET – 5 weeks
SOUTH AMERICA AND EASTERN PACIFIC			
Extreme Eastern Brazil	232 to 348	223 to 327	WET – 4 weeks
Paraguay and Adjacent Argentina	211 to 341	171 to 267	WET – 2 to 5 weeks
Northwestern Argentina	146 to 209	184 to 341	Heavy precipitation first half of February
East–Central Argentina	161 to 258	254 to 324	WET – 2 to 6 weeks
Central Chile and Central Argentina	68 to 192	215 to 452	WET – 2 to 10 weeks
EUROPE AND THE MIDDLE EAST			
Scotland and Norway	102 to 235	174 to 214	WET – 4 weeks
Southern Finland and Northern Estonia	50 to 53	202 to 206	WET – 4 weeks
Northern Norway and Adjacent Russia	64 to 74	211 to 301	Heavy precipitation first half of February
Central Europe	4 to 12	13 to 31	DRY – 9 to 18 weeks
Northern Spain and Southwestern France	16 to 28	19 to 26	DRY – 9 to 18 weeks
Southeastern Spain	65 to 107	272 to 418	Heavy precipitation second half of February
Southeastern Europe	6 to 32	6 to 34	DRY – 6 to 18 weeks
Middle East	67 to 381	207 to 334	WET – 4 to 7 weeks
Georgia	51 to 57	223 to 271	Heavy precipitation second half of February
AFRICA			
Northern Egypt	51 to 122	383 to 487	WET – 9 to 18 weeks
Gabon and Cameroon	11 to 134	15 to 49	DRY – 4 weeks
Southern Africa	1 to 128	1 to 55	DRY – 8 to 26 weeks
Indian Ocean Islands	374 to 469	213 to 232	WET – 2 to 4 weeks
ASIA			
Northern Pakistan and Adjacent India	58 to 109	262 to 266	WET – 2 to 4 weeks
Sri Lanka	0 to 4	0 to 4	DRY – 8 to 12 weeks
Ryukyu Islands, Taiwan, and Southern China	41 to 791	172 to 414	WET – 4 to 9 weeks
East–Central China	1 to 18	1 to 24	DRY – 8 to 9 weeks
Western Japan	11 to 21	15 to 23	DRY – 8 weeks
Central Japan	211 to 267	162 to 166	WET – 4 weeks
Northern Japan	Around 9	18 to 22	DRY – 13 to 14 weeks
AUSTRALIA AND WESTERN PACIFIC			
Philippines and Northern Borneo	0 to 54	0 to 26	DRY – 8 to 16 weeks
Caroline Islands	5 to 58	3 to 20	DRY – 8 weeks
North–Central Australia	126 to 277	216 to 429	WET – 2 to 6 weeks
East–Central Australia	180 to 498	230 to 483	WET – 4 to 8 weeks
Southern New Zealand	159 to 183	170 to 220	WET – 4 weeks

3–MONTH GLOBAL TEMPERATURE ANOMALIES

DECEMBER 1991– FEBRUARY 1992



The anomalies on this chart are based on approximately 2500 observing stations for which at least 78 days of temperature observations were received from synoptic reports. Many stations do not operate on a twenty–four hour basis so many night time observations are not taken. As a result of these missing observations the estimated minimum temperature may have a warm bias. This in turn may have reulted in an overestimation of the extent of some warm anomalies.

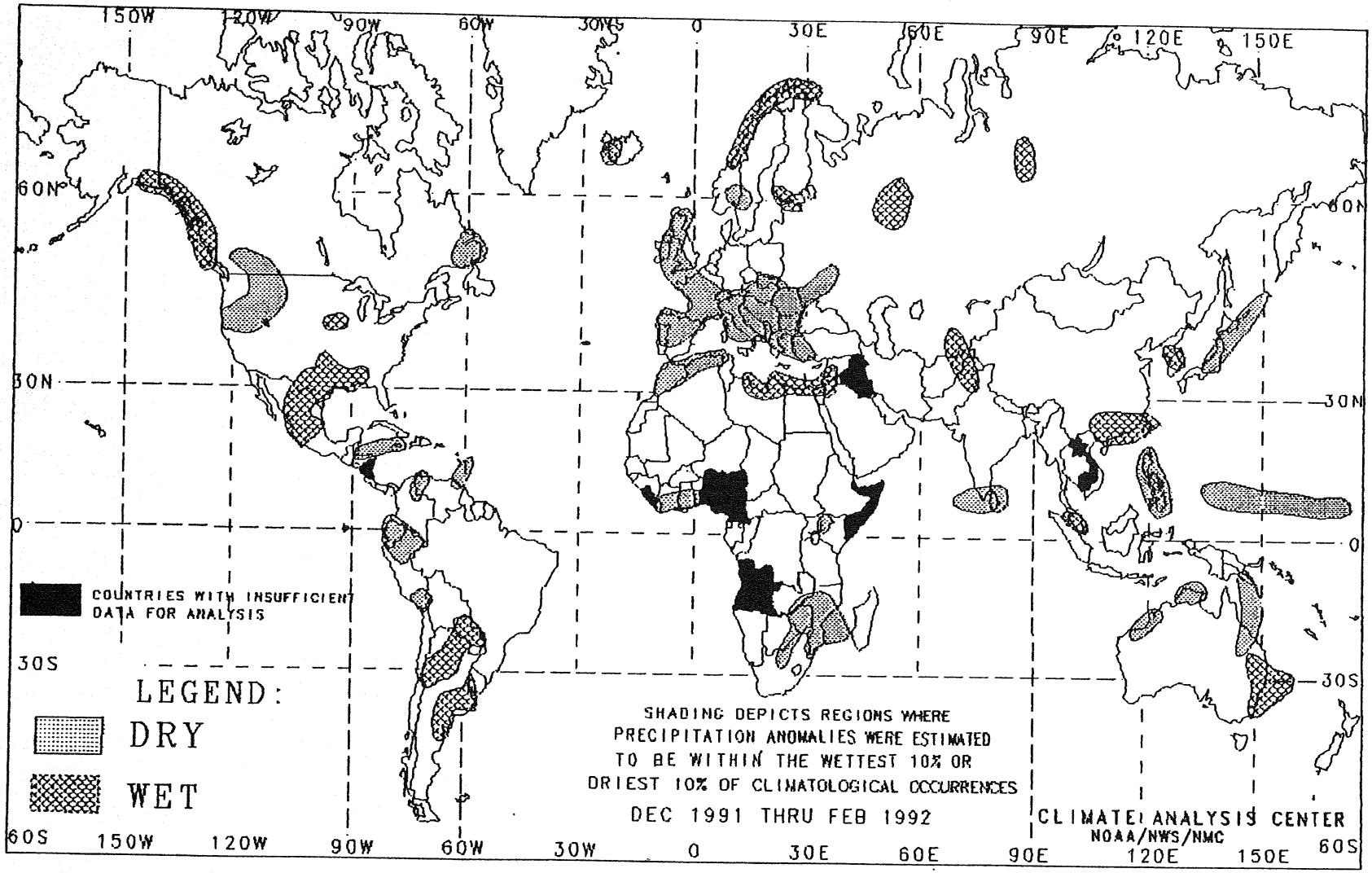
Temperature anomalies are not depicted unless the magnitude of temperature departures from normal exceeds 1.5°C.

In some regions, insufficient data exist to determine the magnitude of anomalies. These regions are located in parts of tropical Africa, southwestern Asia, interior equatorial South America, and along the Arctic Coast. Either current data are too sparse or incomplete for analysis, or historical data are insufficient for determining percentiles, or both. No attempt has been made to estimate the magnitude of anomalies in such regions.

The chart shows general areas of three month temperature anomalies. Caution must be used in relating it to local conditions, especially in mountainous regions.

3–MONTH GLOBAL PRECIPITATION ANOMALIES

DECEMBER 1991 – FEBRUARY 1992

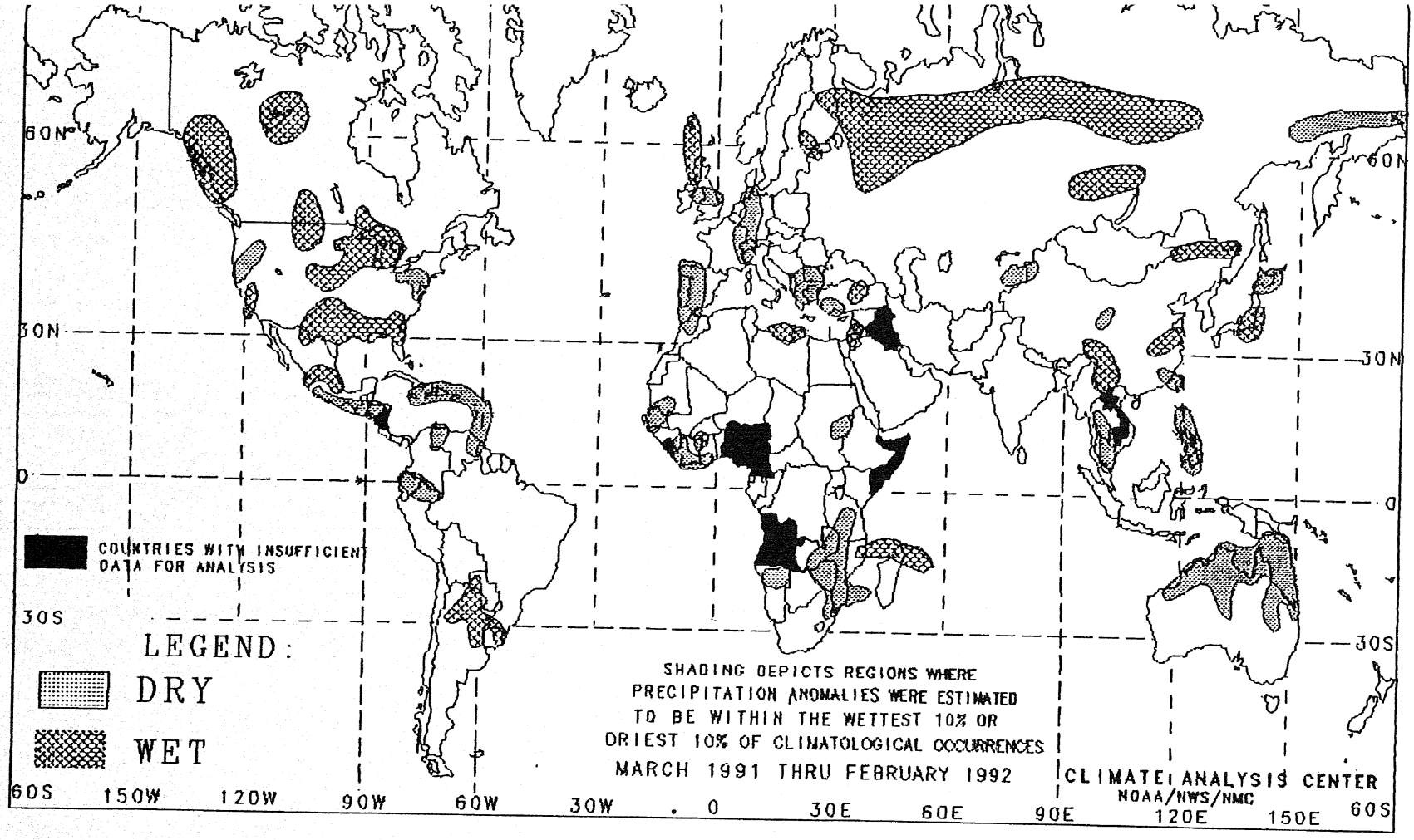


The anomalies on this chart are based on approximately 2500 observing stations for which at least 81 days of precipitation observations (including zero amounts) were received or estimated from synoptic reports. As a result of both missing observations and the use of estimates from synoptic reports (which are conservative), a dry bias in the total precipitation amount may exist for some stations used in this analysis. This in turn may have resulted in an overestimation of the extent of some dry anomalies.

In climatologically arid regions where normal precipitation for the three month period is less than 50 mm, dry anomalies are not depicted. Additionally, wet anomalies for such arid regions are not depicted unless the total three month precipitation exceeds 125 mm.

In some regions, insufficient data exist to determine the magnitude of anomalies. These regions are located in parts of tropical Africa, southwestern Asia, interior equatorial South America, and along the Arctic Coast. Either current data are too sparse or incomplete for analysis, or historical data are insufficient for determining percentiles, or both. No attempt has been made to estimate the magnitude of anomalies in such regions.

The chart shows general areas of three month precipitation anomalies. Caution must be used in relating it to local conditions, especially in mountainous regions.

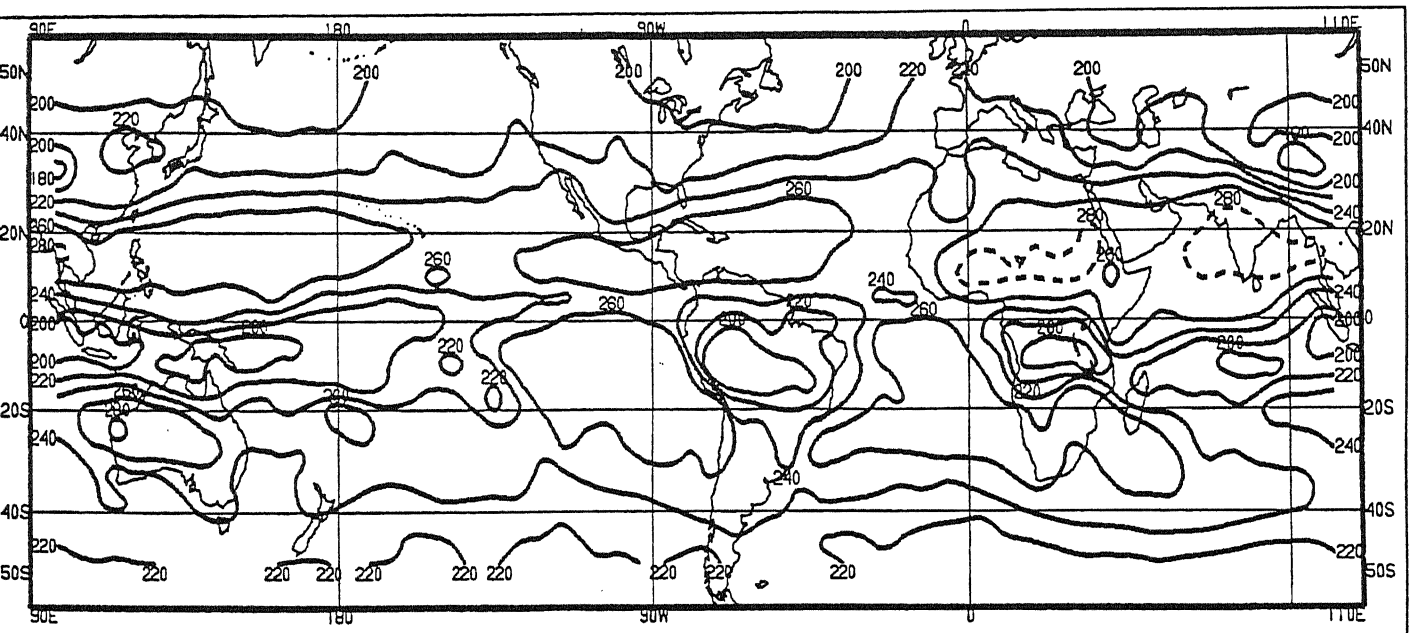


The anomalies on this chart are based on approximately 2500 observing stations for which at least 350 days of precipitation observations (including zero amounts) were received or estimated from synoptic reports. As a result of both missing observations and the use of estimates from synoptic reports (which are conservative), a dry bias in the total precipitation amount may exist for some stations used in this analysis. This in turn may have resulted in an overestimation of the extent of some dry anomalies.

In climatologically arid regions where normal precipitation for the twelve month period is less than 100 mm, dry anomalies are not depicted. Additionally, wet anomalies for such arid regions are not depicted unless the total twelve month precipitation exceeds 250 mm.

In some regions, insufficient data exist to determine the magnitude of anomalies. These regions are located in parts of tropical Africa, southwestern Asia, interior equatorial South America, and along the Arctic Coast. Either current data are too sparse or incomplete for analysis, or historical data are insufficient for determining percentiles, or both. No attempt has been made to estimate the magnitude of anomalies in such regions.

The chart shows general areas of twelve month precipitation anomalies. Caution must be used in relating it to local conditions, especially in mountainous regions.

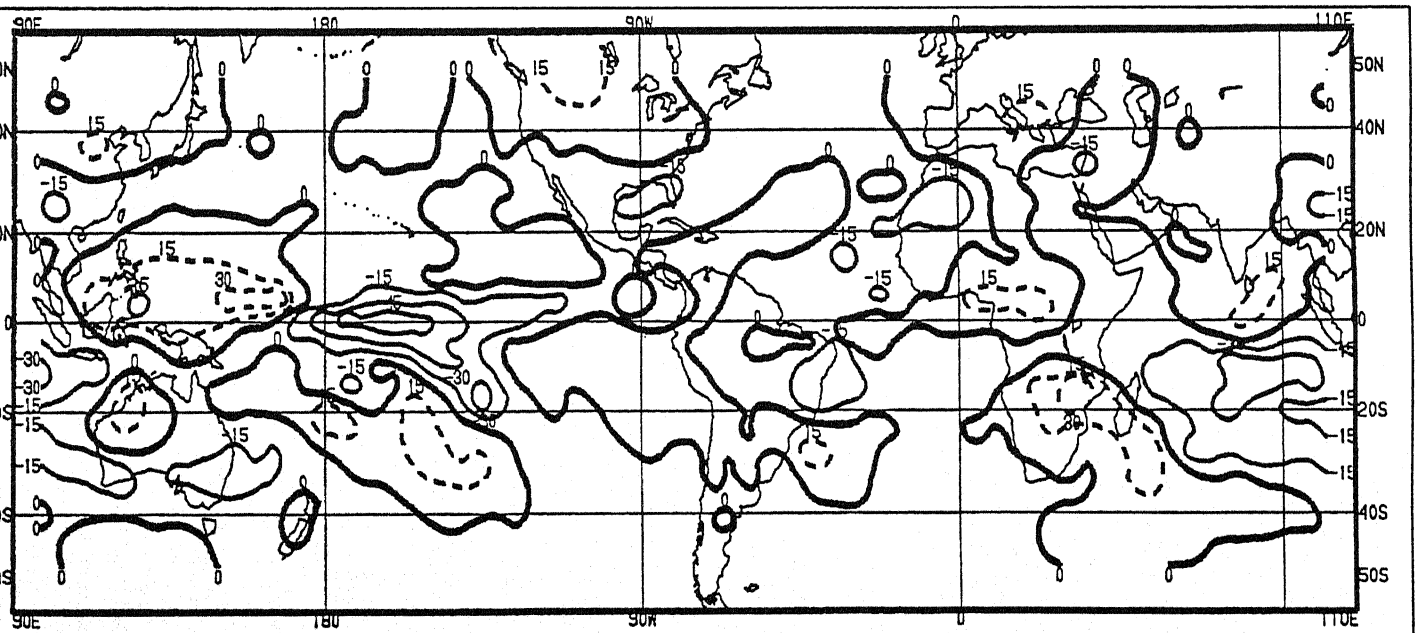


Monthly Mean Outgoing Long Wave Radiation (OLR) for February, 1992

EXPLANATION

The mean monthly outgoing long wave radiation (OLR) as measured by the NOAA–9 AVHRR IR window channel by NESDIS/SRL (top). Data are accumulated and averaged over 2.5° areas to a 5° Mercator grid for display. Contour intervals are 20 Wm^{-2}, and contours of 280 Wm^{-2} and above are dashed. In tropical areas (for our purposes 20°N – 20°S) that receive primarily convective rainfall, a mean OLR value of less than 200 Wm^{-2} is associated with significant monthly precipitation, whereas a value greater than 260 Wm^{-2} normally indicates little or no precipitation. Care must be used in interpreting this chart at higher latitudes, where much of the precipitation is non–convective, or in some tropical coastal or island locations, where precipitation is primarily orographically induced. The approximate relationship between mean OLR and precipitation amount does not necessarily hold in such locations.

The mean monthly outgoing long wave radiation anomalies (bottom) are computed as departures from the 1979 – 1988 base period mean. Contour intervals are 15 Wm^{-2}, while positive anomalies (greater than normal OLR, suggesting less than normal cloud cover and/or precipitation) are dashed and negative anomalies (less than normal OLR, suggesting greater than normal cloud cover and/or precipitation) are solid.



Monthly Mean Outgoing Long Wave Radiation (OLR) Anomaly for February, 1992